

PATENT ABSTRACTS OF JAPAN

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(54) DENTIFRICE COMPOSITION CONTAINING ABRASIVE IN COMBINATION WITH FLUORINE COMPOUND

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a dentifrice composition containing abrasive in combination with a fluorine compound, having highly persistent caries-preventive effect and capable of effectively preventing the damage of dentine caused by abrasive.

SOLUTION: This dentifrice composition containing abrasive in combination with a fluorine compound contains, as an abrasive assistant, coarse particles of crystalline cellulose X having particle diameter of 90-212 μm and an average particle diameter of 100-200 μm or a mixture of the coarse crystalline cellulose X particles and fine particles of crystalline cellulose Y having particle diameter of $\leq 90 \mu\text{m}$ and an average particle diameter of 10-70 μm .

CLAIMS

[Claim(s)]

[Claim 1]Dentifrice composition containing abrasive in combination with fluorine compound, wherein it has the particle diameter of 90-212 micrometers and the mean particle diameter uses the coarse particle-like crystalline cellulose X which is 100-200 micrometers as an auxiliary agent of this abrasive soap in an abrasive soap content dentifrice composition which blended a fluorine compound.

[Claim 2]In a blended abrasive soap content dentifrice composition, a fluorine compound as an auxiliary agent of this abrasive soap, The coarse particle-like crystalline cellulose X in which it has the particle diameter of 90-212 micrometers, and the mean particle diameter is 100-200 micrometers, Dentifrice composition containing abrasive in combination with fluorine compound having the particle diameter of 90 micrometers or less, and using a mixture with particle-like crystalline cellulose Y in which the mean particle diameter is 10-70 micrometers.

[Claim 3]Dentifrice composition containing abrasive in combination with fluorine compound of claim 2 the weight ratio [Y] / whose [X] of particle-like crystalline cellulose Y to the coarse particle-like crystalline cellulose X are 1 / 9 - 9/1.

[Claim 4]One dentifrice composition containing abrasive in combination with fluorine compound of claims 1-3 whose fluorine compounds are sodium fluoride.

[Claim 5]One fluorine compound concomitant use abrasive soap content dentifrices of claims 1-3 whose fluorine compounds are sodium monofluorophosphate.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the dentifrice composition containing abrasive in combination with fluorine compound excellent in the durability of the caries preventive effect which used together a fluorine compound and specific crystalline cellulose.

[0002]

[Description of the Prior Art]A caries is a disease of oral cavity which happens because caries virulence bacteria, such as a Streptococcus mutans, produce acid and delime a human tooth. The dentifrices containing abrasive soap are attached to a toothbrush as a means for caries prevention, and although it is most efficient to perform dental plaque removal by brushing, dentine strengthening by a fluorine compound is proposed as a means to assist it. However, in the dentifrices containing abrasive soap, since mouth washing after use is indispensable, the retentivity of a fluorine compound is bad and is the actual condition that sufficient caries preventive effect is not acquired.

[0003]The constituent for the abrasive soap content mouths which performs stable fluoride supply for a gear tooth in JP,6-298631,A, and gives it the outstanding prevention-of-cariosity effect is proposed. With fluoride colloid as a fluorine compound, this constituent tends to contain phosphoric acid compounds, such as polyphosphoric acid, tends to prevent destruction of fluoride colloid, and condensation, and tends to supply fluoride supply for a gear tooth stably over a long time. However, since it is necessary to carry out the mixing reaction of water-soluble hydrofluoric acid salt and the water-soluble-calcium salt under existence of a colloid-ized accelerator in order to obtain fluoride colloid in the case of this constituent, there is a problem that that constituent system becomes complicated. On the other hand, in the dentifrice composition into which abrasive soap was put, the constituent containing the abrasive soap auxiliary agent which consists of an organic granular material for preventing damage to the dentine by abrasive soap with the abrasive soap which consists of inorganic powder is known. For example, the dentifrice composition which blended various kinds of insoluble cellulose powder with water as an abrasive soap auxiliary agent is proposed (JP,55-98111,A, JP,5-58861,A). However, it is a thing of the shape of a particle of 70 micrometers or less in the mean particle diameter which is concretely shown in the example of these gazettes. According to this invention persons' research, since a feeling of smeariness is produced when it enters in the mouth, it may not yet be satisfied with the cellulose powder of the shape of such a particle in respect of a use feel. According to JP,9-40537,A, the constituent for the mouths which blended the shape-ized cellulose of ** whose mean

particle diameter produced by corning the cellulose powder whose mean particle diameter insoluble to water is 1-50 micrometers is 50-1000 micrometers is proposed. However, since these granulation cellulose needs to corn impalpable powder-like cellulose powder using a binder, it has the problem that the cost becomes high, and also it includes problems, like depending on a toothbrushing manufacturing machine kind, an agglomerated powder object breaks during the manufacture.

[0004]

[Problem(s) to be Solved by the Invention]In the dentifrice composition which contains abrasive soap with a fluorine compound, this invention makes it the technical problem to provide the constituent which is excellent in the durability of the prevention-of-cariosity effect, and prevents damage to the dentine by abrasive soap effectively.

[0005]

[Means for Solving the Problem]This invention persons came to complete this invention, as a result of repeating research wholeheartedly that said technical problem should be solved. Namely, in an abrasive soap content dentifrice composition which blended a fluorine compound according to this invention, As an auxiliary agent of this abrasive soap, it has the particle diameter of 90-212 micrometers, and dentifrice composition containing abrasive in combination with fluorine compound in which the mean particle diameter is characterized by using the coarse particle-like crystalline cellulose X which is 100-200 micrometers is provided. In an abrasive soap content dentifrice composition which blended a fluorine compound according to this invention, The coarse particle-like crystalline cellulose X in which it has the particle diameter of 90-212 micrometers, and the mean particle diameter is 100-200 micrometers as an auxiliary agent of this abrasive soap, It has the particle diameter of 90 micrometers or less, and dentifrice composition containing abrasive in combination with fluorine compound using a mixture with particle-like crystalline cellulose Y in which the mean particle diameter is 10-70 micrometers is provided.

[0006]

[Embodiment of the Invention]In the constituent of entering [which blended the conventional fluorine compound] abrasive soap, the mixture of coarse particle-like crystalline cellulose X, or this coarse particle-like crystalline cellulose X and particle-like crystalline cellulose Y is used for the dentifrice composition (only henceforth a constituent) of this invention as that abrasive soap auxiliary agent. The coarse particle-like crystalline cellulose X has 90-212 micrometers of particle diameter of 125-180 micrometers preferably, and 100-200 micrometers of the mean particle diameter consists of 140-170-micrometer crystalline cellulose preferably. On the other hand, particle-like crystalline cellulose Y has 90 micrometers or less of particle diameter of 63 micrometers or less preferably, and 10-75 micrometers of the mean particle diameter consists of 45-58-micrometer crystalline cellulose preferably. The lower limit of the particle diameter of particle-like crystalline cellulose Y in this case is usually about 1 micrometer. when using the mixture of the coarse particle-like crystalline cellulose X and particle-like crystalline cellulose Y, the using rate is the weight ratio $[Y] / [X]$ of the cellulose Y to the cellulose X -- $1 / 9 - 9 / 1$ -- it is $1 / 2 - 4 / 1$ preferably.

[0007]The crystalline cellulose used by this invention is natural cellulose itself chemically, and after it hydrolyzes high grade refining pulp using mineral acid and carries out washing removal of the amorphous region, it is the powdered thing produced

by grinding, refining and drying. in the coarse particle-like crystalline cellulose X -- the bulk specific gravity (g/cc) -- 0.1 to 0.6 -- it is 0.2-0.5 preferably. The true specific gravity is about 1.55. in particle-like crystalline cellulose Y -- the bulk specific gravity (g/cc) -- 0.1 to 0.6 -- it is 0.2-0.5 preferably. The true specific gravity is about 1.55.

[0008]Among all the constituents, 0.1 to 20% of the weight, the loadings of said abrasive soap auxiliary agent are 0.2 to 10 % of the weight preferably, and are 0.5 to 5 % of the weight still more preferably. If there are too few the loadings, the dentine damage prevention effect by abrasive soap will become insufficient, and on the other hand, if too large, a using feeling will produce inconvenience, such as worsening.

[0009]The constituent containing the mixture of said coarse particle-like crystalline cellulose X by this invention, or this crystalline cellulose X and microparticulate crystalline cellulose Y has the retentivity in the mouth of the raised fluorine compound, and shows the outstanding cariosity preventive effect. Moreover, the mixture of crystalline cellulose X, or its crystalline cellulose X and crystalline cellulose Y is excellent also in the using feeling, and shows the advantage of being still cheaper while it shows the effect outstanding as an abrasive soap auxiliary agent.

[0010]Although a fluorine compound is contained for cariosity prevention, as a fluorine compound in this case, as for the constituent of this invention, what [various kinds of] that emits a fluorine ion is conventionally publicly known is used. The first tin of monofluorophosphoric acid salt; fluoridation, such as sodium monofluorophosphate besides alkali metal fluorides, such as calcium fluoride and potassium fluoride, ammonium fluoride, etc. are included by such thing. The loadings of a fluorine compound are 400 - 2000wtppm preferably 100 to 4000 wtppm as a fluorine ion (F^-) among a constituent.

[0011]The constituent of this invention contains abrasive soap with said abrasive soap auxiliary agent and a fluorine compound, and contains other ingredients, for example, a binder, a viscous agent, a moisturizer, a surface-active agent, sweetners, perfume, and an antiseptic.

[0012]As abrasive soap, dibasic calcium phosphate, two hydrates and anhydrate, the 1st calcium phosphate, Calcium phosphate system compounds, such as tribasic calcium phosphate and calcium pyrophosphate, etc. Calcium carbonate, aluminium hydroxide, alumina, a silicic acid anhydride, aluminum silicate, The synthetic resin powder of poly methyl methacrylate and others is mentioned to inorganic powder, such as insoluble sodium metaphosphate, the 3rd magnesium phosphate, magnesium carbonate, calcium sulfate, bentonite, and zirconium silicate, and a pan. the loadings of abrasive soap -- 5- of the whole constituent -- it is 10 to 50 % of the weight especially 60% of the weight.

[0013]As a binder, a carrageenan, carboxymethylcellulose sodium, Cellulosics, such as methyl cellulose and hydroxyethyl cellulose, Gums, such as xanthan gum, tragacanth gum, karaya gum, and gum arabic, Inorganic binders, such as synthetic binders, such as polyvinyl alcohol, sodium polyacrylate, a carboxyvinyl polymer, and a polyvinyl pyrrolidone, silica gel, aluminum silica gel, veegum, and RAPONAITO, etc. are mentioned.

[0014]As a viscous agent or a moisturizer, sorbitol, glycerin, ethylene glycol, propylene glycol, a 1,3-butylene glycol, a polyethylene glycol, a polypropylene glycol, xylitol, maltitol, a RAKUCHI toll, etc. are mentioned.

[0015]As perfume, menthol, anethole, carvone, eugenol, Limonene, n-decyl alcohol, citronellol, alpha-terpineol, Citronellyl acetate, cineol, linalool, ethyl linalool,

WANIRIN, Timor, spearmint oil, peppermint oil, lemon oil, orange oil, sage oil, rosemary oil, cinnamon oil, pimento oil, Katsura leaf oil, a beefsteak plant oil, wintergreen oil, clove oil, eucalyptus oil, etc. are mentioned.

[0016]as sweeteners -- saccharin sodium, stevioside, neohesperidyl dihydrochalcone, glycyrrhizin, perilla rutin, thaumatin, and asparagus -- sweeteners, such as chill phenylalanine methyl ester and p-methoxy thinner MIKKU aldehyde, is mentioned.

[0017]In the constituent of this invention, a dextranase, mutanase, a lysozyme, Enzymes, such as amylase, protease, lytic enzyme, and super-oxide dismutase, Alkaline metal monofluoro phosphate and sodium fluorides, such as sodium-monofluorophosphate, potassium, mono-fluorophosphate, Fluorides, such as the 1st tin of fluoridation, tranexamic acid, epsilon aminocaproic acid, Aluminum KURORU hydroxyallantoin, a dihydrocholestanol, Glycyrrhizin acids, glycyrrhetic acid, bisabolol, isopropylmethyl phenol, One sort of active principles, such as glycerophosphate, chlorophyll, cupric gluconate, sodium chloride, a water-soluble inorganic-phosphoric-acid compound, triclosan, cetyl pyridinium chloride, a benzalkonium chloride, and benzethonium chloride, or two sorts or more can be blended.

[0018]An anionic surface active agent, a nonionic surface active agent, an amphionic surface active agent, etc. can be blended with the constituent of this invention as a surface-active agent.

[0019]As an anionic surface active agent, specifically Sodium lauryl sulfate, Sodium alkylsulfate, such as myristic acid sodium sulfate, N-lauroyl ZARUKOSHIN acid sodium, N-acyl ZARUKOSHIN acid sodium, such as N-myristoyl ZARUKOSHIN acid sodium, Sodium dodecylbenzenesulfonate, hydrogenation coconut fatty acid monoglyceride monosodium sulfate, N-acyl glutamate, such as sodium lauryl sulfosulfate and N-palmitoyl sodium glutamate, N-methyl-N-acyl taurine sodium, N-methyl-N-acyl alanine sodium, alpha olefin sulfone sodium, etc. are mentioned.

[0020]As a nonionic surface active agent, sucrose fatty acid ester, malt sugar fatty acid ester, Sugar fatty acid ester, such as lactose fatty acid ester, maltitol fatty acid ester, Sugar-alcohol fatty acid ester, such as RAKUCHI toll fatty acid ester, polyoxyethylene sorbitan monolaurate, Polyoxyethylene sorbitan fatty acid ester, such as polyoxyethylenesorbitan monostearate, Polyoxyethylene fatty acid ester, such as polyoxyethylene hydrogenated castor oil, Diethanolamide and myristic acid mono- ** lauric acid mono- ** Fatty acid diethanolamide, such as diethanolamide, A sorbitan fatty acid ester, polyoxyethylene higher alcohol ether, a polyoxyethylene polyoxypropylene copolymer, polyoxyethylene polyoxypropylene fatty acid ester, etc. are mentioned.

[0021]As an amphionic surface active agent, N-lauryl diaminoethylglycine, N-alkyl diaminoethylglycines, such as N-millimeter SUCHIRUJI aminoethyl glycine, N-alkyl N-carboxymethyl ammonium betaine, 2-alkyl 1-hydroxyethyl imidazoline betaine sodium, etc. are mentioned.

[0022]In this case, especially as a surface-active agent, an anionic surface active agent is preferred and sodium alkylsulfate, such as sodium lauryl sulfate, etc. are specifically preferred. in addition -- even if these surface-active agents use one of them independently and they use two or more sorts together, they do not interfere -- the loadings -- usually -- 0.01- of the whole constituent -- it is 0.05 to 3 % of the weight more preferably 5% of the weight.

[0023]

[Example]Next, an example explains this invention still in detail. % shown below shows weight %.

[0024]In the 2.5N hydrochloric acid aqueous solution, hydrolysis was performed for 105 ** and 15 minutes, filtration washing of the reference example 1(manufacture and classification of crystalline cellulose)DP pulp (average degree of polymerization 1000) was carried out, and the crystalline cellulose of the damp or wet condition was obtained. Unfolded this finely, it was made to dry with 60 ** hot air drying equipment until the moisture content became 5%, and it pulverized with the hammermill after coarse grinding by the crusher, and through and powder crystal cellulose were obtained for the sieve of the sieve number 50 specified to Japanese Industrial Standard Z 8801 No. This was classified with the sieve of the sieve numbers 70, 83, 100, 119, 166, 235, 282, and 391, and crystalline cellulose A shown in Table 1, B, C, D, E, F, G, H, and I were obtained. Mean particle diameter was measured with the micro track grading analysis plan (Nikkiso Co., Ltd.), and these crystalline cellulose was shown in Table 1.

[0025]

[Table 1]

結晶セルロース No.	通らなかったふるい番号 (呼び寸法)	通ったふるい番号 (呼び寸法)	平均粒径 (μ m)
A	70(212 μ m)	50(300 μ m)	250
B	83(180 μ m)	70(212 μ m)	200
C	100(150 μ m)	83(180 μ m)	170
D	119(125 μ m)	100(150 μ m)	140
E	166(90 μ m)	119(125 μ m)	100
F	235(63 μ m)	166(90 μ m)	70
G	282(53 μ m)	235(63 μ m)	58
H	391(38 μ m)	282(53 μ m)	45
I		391(38 μ m)	10

[0026]The dentifrice composition of the example of experiment 1 following-component presentation (% of the weight) was prepared, and the retentivity test in the mouth of fluoride was done as follows. The result is shown in Table 2.

[A presentation of examination dentifrices]

crystalline cellulose The kind shown in Table 2, and quantity Silicate 20% sodium lauryl sulfate 1.5% carrageenan 1% sorbitol 35% perfume 1% fluorine compound (kind shown in Table 2) as a fluorine ion -- 1000 wtpm purified water The remainder . -----

----- ** Total 100%[0027](The method of the retentivity test in the mouth of fluoride) The above-mentioned dentifrice composition 1g was taken to the toothbrush, and was used for 3 minutes. Then, with 60 ml of water, the inside of a mouth was turned too much three, and it measured temporally about the fluorine concentration in saliva.

[0028]

[Table 2]

	フッ素の種類	結晶セルロース No.	結晶セルロース 配合量	唾液中のフッ素濃度 (w t p p m)		
				10分後	20分後	30分後
発 明 例	フッ化ナトリウム	B	5%	5.0	2.3	0.5
	フッ化ナトリウム	C	5%	5.1	2.2	0.5
	フッ化ナトリウム	D	5%	5.2	2.4	0.6
	フッ化ナトリウム	E	5%	3.9	2.0	0.4
	フッ化ナトリウム	D	0.1%	3.4	1.8	0.3
	フッ化ナトリウム	D	0.2%	4.2	2.0	0.4
	フッ化ナトリウム	D	0.5%	5.1	2.3	0.5
	モノフルオロリン酸 ナトリウム	D	5%	5.3	2.2	0.5
	フッ化第一スズ	D	5%	3.6	1.9	0.3
	フッ化カリウム	D	5%	3.2	1.7	0.3
比 較 例	フッ化ナトリウム	無配合	—	1.5	0.5	0.1
	モノフルオロリン酸 ナトリウム	無配合	—	1.7	0.6	0.1
	フッ化ナトリウム	F	5%	1.6	0.4	0.1
	モノフルオロリン酸 ナトリウム	F	5%	1.5	0.5	0.1

[0029]The result of Table 2 shows that mean particle diameter is raising the retentivity in the mouth of a fluorine compound as for 100 to 200-micrometer crystalline cellulose with the particle diameter of 90 to 212 micrometers. It turns out that 140 to 200-micrometer crystalline cellulose is raising the retentivity in the mouth of a fluorine compound more effectively. These effects become weak in the first tin of fluoridation and potassium fluoride which it is remarkable and are other fluoridation compounds in sodium fluoride and sodium monofluorophosphate. On the other hand, the loadings of crystalline cellulose are understood that 0.2% or more is preferred and 0.5% or more is more preferred.

[0030]The following animal experiments were carried out for the caries depressor effect of example of experiment 2 caries control experiment (experimental method) dentifrices to the strong **** sake. The caries control ability of the tooth paste agent containing the ingredient (% of the weight) shown in Table 3 was investigated using the golden hamster which is a model system of a caries. 10449 shares of caries organism Streptococci mutans of streptomycin tolerance were infected with the 3-weeks old (**) hamster which consists of each ten groups. After it carried out 1 platinum-loop inoculation of the above-

mentioned strain to a 4-ml BHI culture medium (made by BBL) and 36 ** of infection cultivated it under the anaerobic condition for 20 hours, it performed for three days that this fungus liquid was dropped at 0.1-ml inner mouth. Fixing of the bacillus of each hamster was checked using MS agar medium (made by Difco) which contains streptomycin 0.1%. Administration of dentifrices was performed for five weeks from backward [which checked fixing of the bacillus]. The dentifrices used for the experiment used what extracted the dentifrices shown in Table 3 with triple the amount of water. The medication method carried out bis die dropping administration of every 0.1 ml a total of 0.3 ml in inner mouth and a right-and-left teak porch. The control group carried out dropping administration of the filtration ion exchange water by the same method as the above. Caries induction powder feed Diet2000 was used as feed in an experimental period. Drinking water used the ion exchange water filtered by noodle ** Wren Phil Tarr with the aperture of 0.2 micrometer. Evaluation of the caries was performed in accordance with the method (J. Dent.Res.23 volume, 1944) of KYESE. The caries control rate was computed by the following formula.

[0031]

[Table 3]

成 分	差 明 例							比 較 例					
	1	2	3	4	5	6	7	1	2	3	4	5	6
クイ酸塩	20	20	20	20	20	20	20	20	20	20	20	20	20
ソルビット	35	35	35	35	35	35	35	35	35	35	35	35	35
ラウリン硫酸 ナトリウム	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
カルボキシメチル セルローズNa	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
サッカリン ナトリウム	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
プロピレン グリコール	5	5	5	5	5	5	5	5	5	5	5	5	5
香 料	1	1	1	1	1	1	1	1	1	1	1	1	1
結晶セルローズB	5												
結晶セルローズC		5											
結晶セルローズD			5		5	5	5					5	
結晶セルローズE				5									
結晶セルローズF													5
フッ化ナトリウム	0.22	0.22	0.22	0.22				0.22					0.22
モノフルオロリン 酸ナトリウム					0.76				0.76				
フッ化第一スズ						0.32				0.32			
フッ化カリウム							0.31				0.31		
水	残	残	残	残	残	残	残	残	残	残	残	残	残
合 計	100	100	100	100	100	100	100	100	100	100	100	100	100
う蝕抑制率 (%)	74	70	72	58	71	55	59	37	35	32	35	5	35

薬剤群のう蝕スコアー

$$\text{う蝕抑制率(\%)} = 100 - \frac{\text{薬剤群のう蝕スコアー}}{\text{コントロール群のう蝕スコアー}} \times 100$$

[0032]When mean particle diameter used together 100 to 200-micrometer crystalline cellulose, and a fluorine compound with the particle diameter of 90 to 212 micrometers from the result of Table 3, it turned out that the caries control effect increases. When 140 to 200-micrometer crystalline cellulose is used, it turns out that this result is more effective. These effects become weak in the first tin of fluoridation and potassium fluoride which it is remarkable and are other fluoridation compounds in sodium fluoride and sodium monofluorophosphate.

[0033]

Example 3 Using feeling test [A presentation of examination dentifrices]

Crystalline cellulose The kind shown in Table 2, quantity Sodium monofluorophosphate 0.7% dibasic calcium phosphate 40% sodium lauryl sulfate 1.5% carboxymethyl cellulose Na 1% sorbitol 25% saccharin sodium 0.1% perfume 1% purified water ** . ----

----- ** Total 100%[0034][The method of a using feeling test] Ten persons' special panelist estimated the using feeling (a feeling of ZARATSUKI, a feeling of smeariness) of the tooth paste agent of the above-mentioned presentation with the following marks. The result is shown in Table 4.

using feeling marks 5: -- 4: which is not felt at all -- 3: merely sensed a few -- 1: which is sensed a few and to 2: sense -- it senses dramatically [0035]

[Table 4]

	結晶セルロース配合量 (%)									使用感評点	
No.	A	B	C	D	E	F	G	H	I	ザラツキ 感	ベタツキ 感
平均粒径	250	200	170	140	100	75	58	45	10	感	感
実験No. 1		5								2	5
実験No. 2			5							3	5
実験No. 3				5						3	5
実験No. 4					5					3	5
実験No. 5		5				5				4	5
実験No. 6		5					5			5	5
実験No. 7		5						5		5	5
実験No. 8		5							5	5	5
実験No. 9					5	5				5	5
実験No. 10					5		5			5	5
実験No. 11					5			5		5	5
実験No. 12					5				5	5	4
実験No. 13				1				9		5	4
実験No. 14				9				1		4	5
実験No. 15				4				2		5	5
実験No. 16				1				4		5	5
実験No. 17				1				10		5	3
実験No. 18				10				1		3	5
実験No. 19	5									1	5
実験No. 20	5								5	1	5
実験No. 21						5				5	2

[0036] From the result of Table 4, 100-170-micrometer crystalline cellulose is preferably understood are [coarse particle-like] crystalline cellulose (100 micrometers - 200 micrometers) and that a using feeling is [which have few feeling of ZARATSUKI than crystalline cellulose (experiment No.19, 20) with a mean particle diameter of 250 micrometers] good. In a crystalline cellulose independent (experiment No.21) with a mean particle diameter of 70 micrometers or less, it turns out that a feeling of smeariness is high and a using feeling is bad. It turns out with the particle diameter of 90 micrometers or less particle-like crystalline cellulose with a mean particle diameter of 10 micrometers - 75 micrometers and that (experiment No.5-18) and a feeling of

ZARATSUKI are improved good by adding particle-like crystalline cellulose (45 micrometers - 58 micrometers) preferably. The weight ratio of coarse particle-like crystalline cellulose and particle-like crystalline cellulose is understood 1:9 to are 9:1, and that a using feeling is preferably good at the time of 2:1-1:4.

[0037]The example of concrete combination of the dentifrice composition by one to example 9 this invention is shown in Table 5.

[0038]

[Table 5]

組成物No.	1	2	3	4	5	6	7	8	9
ケイ酸塩		25.0			20.0			10.0	
第2リン酸カルシウム・2水和物	40.0						35.0		45.0
水酸化アルミニウム			35.0			40.0			
炭酸カルシウム				40.0					
グリセリン (85%)	15.0			25.0		20.0	10.0		10.0
ソルビット (70%)	10.0	30.0	30.0		30.0		30.0	40.0	15.0
プロピレングリコール	3.0		3.0	3.0	3.0		2.0	2.0	3.0
ポリエチレングリコール #400		5.0				3.0	1.0	3.0	
ラウリル硫酸ナトリウム	1.5	1.4	1.5	1.8	1.0	1.2		2.0	1.5
ラウリン酸デカグリセリル					0.5				0.3
POE硬化ヒマシ油			1.0				3.0		
酢酸トコフェノール						0.2			
トラネキサム酸		0.1					0.1		0.1
トリクロサン					0.1			0.1	
硫酸ナトリウム(無水)								0.5	
カルボキシメチルセルロースナトリウム	1.2	1.4		1.2	0.7	1.0			1.0
カラギーナン					0.6		0.9	0.6	
アルギン酸ナトリウム	0.3		0.6			0.3		0.5	0.3
ササントムガム			0.5				0.3		
サッカリンナトリウム	0.1	0.1	0.1	0.1	0.1	0.1	0.1		0.1
香料	1.0	1.2	1.2	1.0	0.8	1.3	0.7	1.0	1.2
結晶セルロース No. B				3.0					1.0
結晶セルロース No. C	3.0					2.0		5.0	
結晶セルロース No. D			1.0		1.0		5.0		
結晶セルロース No. E		5.0							
結晶セルロース No. F									2.0
結晶セルロース No. G	2.0				3.0			10.0	
結晶セルロース No. H				3.0		2.0			2.0
結晶セルロース No. I			3.0				5.0	5.0	
フッ化ナトリウム		0.2			0.2			0.3	
モノフルオロリン酸ナトリウム	0.7	0.7	1.0	1.0		1.0	0.7		0.7
水	残	残	残	残	残	残	残	残	残
計	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

[0039]

[Effect of the Invention] From containing specific cellulose, the dentifrice composition of this invention has the retentivity in the mouth of the raised fluorine compound, and is excellent in the durability of a cariosity preventive effect. Moreover, by the operation outstanding as an abrasive soap auxiliary agent of the specific cellulose, the constituent of this invention can remove effectively the dirt of tooth surfaces, such as a dental plaque and a coloring nature precipitate, and also it can prevent effectively damage to the dentine by the abrasive soap. The constituent of this invention is advantageously applied as the dentifrice composition, for example, a tooth paste agent constituent, containing abrasive soap, a liquefied dentifrice composition, etc.

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(54) 【発明の名称】 フッ素化合物併用研磨剤含有歯磨剤組成物

(57) 【要約】

【課題】 フッ素化合物とともに研磨剤を含む歯磨剤組成物において、う蝕予防効果の持続性にすぐれ、かつ研磨剤による歯質の損傷を効果的に防止する組成物を提供する。

【解決手段】 フッ素化合物を配合した研磨剤含有歯磨剤組成物において、該研磨剤の助剤として、90～212 μ mの粒径を有し、その平均粒径が100～200 μ mである粗粒子状結晶セルロースXを用いるか又はこの粗粒子状結晶セルロースXと90 μ m以下の粒径を有し、その平均粒径が10～70 μ mの微粒子状結晶セルロースYとの混合物を用いることを特徴とするフッ素化合物併用研磨剤含有歯磨剤組成物。